**NAME OF THE WORK: Improvements To Roads And Drains At Tanisandra Dasarahalli Saraipalya And Bharathnagar And Surrounding Area In Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Si No 109,110,111. Comprehensive Development And Improvements To Roads And Drains Rachenahalli And Surrounding Area In Ward No 6&7 Byatarayanapura Sub Division Package -2 (Old Annuxure-2) Go Sl No 12and 113**

# First and Part Bill

# Quality Control Reports

## BOOK NO – 01

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# 4, 7TH MAIN MALLESWARAM, BANGALORE -3
Certificate No.: TC-5548

# QC ABSTRACT

**NAME OF WORK:** Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

| SL NO | Item Of Work | Name of Test | Frequency of Test/Quantity | Executed Quantity | Number of Tests Required | Number of Tests Conducted |
|---|---|---|---|---|---|---|
| | | **Materials** | | | | |
| 1 | Cement | Fineness by dry sieving | One Test | | 1 | 1 |
| | | Finess by Air permeablity method | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Standard Consistency | One Test | | 1 | 1 |
| | | Initial Setting time | One Test | | 1 | 1 |
| | | Final Setting time | One Test | | 1 | 1 |
| | | Soundness (Le Chatelier's Method) | One Test | | 1 | 1 |
| | | Compressive Strength | One Test | | 1 | 1 |
| 2 | Coarse aggregate(40 mm down size) | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Bulk Density(Loose) | One Test | | 1 | 1 |
| | | Bulk Density(Compacted) | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| 3 | Coarse aggregate(20 mm down size) | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Bulk Density(Loose) | One Test | | 1 | 1 |
| | | Bulk Density(Compacted) | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Aggregate crushing Value | One Test | | 1 | 1 |
| | | Aggregate Impact Value | One Test | | 1 | 1 |
| 4 | Fine aggregate | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Specific Gravity | One Test | | 1 | 1 |
| | | Material finer than 75 micron | One Test | | 1 | 1 |
| 5 | Steel | Bend test | One Test | | 1 | 1 |
| | | Tensile Test | One Test | | 1 | 1 |
| | | Yield Test | One Test | | 1 | 1 |
| | | ReBend test | One Test | | 1 | 1 |
| 6 | Precast (100mm) | Core Compressive Strength | One Test | | 1 | 1 |
| | | Corrected Cylinder Compressive Strength | One Test | | 1 | 1 |
| | | Equivalent Cube Compressive Strength | One Test | | 1 | 1 |
| 7 | Precast (250mm) | Core Compressive Strength | One Test | | 1 | 1 |
| | | Corrected Cylinder Compressive Strength | One Test | | 1 | 1 |
| | | Equivalent Cube Compressive Strength | One Test | | 1 | 1 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | RCC(M20) | Compressive Strength(7days and 28days) | 16 set /601-650 cum | 632.51 | 32 | 32 |
| 9 | Cement Concrete Pavemet (M30) | Compressive Strength(7days and 28days) | 24 set /1000-1100 cum | 1079.29 | 46 | 46 |
| 10 | WMM | Sieve Analysis | One Test | | 1 | 1 |
| | | Impact Value | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| 11 | DBM | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | STRIPPING VALUE | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | IMPACT VALUE | One Test | | 1 | 1 |
| | | Specific gravity | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Marshal Stability | One Test | | 1 | 1 |
| | | Marshal flow | One Test | | 1 | 1 |
| | | Percent air Voids | One Test | | 1 | 1 |
| | | Percent Voids in mineral Aggregate | One Test | | 1 | 1 |
| | | Percent Voids filled with Bitumen | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Gradation | One Test | | 1 | 1 |
| 12 | BC | SIEVE ANALYSIS | One Test | | 1 | 1 |
| | | STRIPPING VALUE | One Test | | 1 | 1 |
| | | Flakiness Index | One Test | | 1 | 1 |
| | | Elongation Index | One Test | | 1 | 1 |
| | | IMPACT VALUE | One Test | | 1 | 1 |
| | | Specific gravity | One Test | | 1 | 1 |
| | | Water Absorption | One Test | | 1 | 1 |
| | | Marshal Stability | One Test | | 1 | 1 |
| | | Marshal flow | One Test | | 1 | 1 |
| | | Percent air Voids | One Test | | 1 | 1 |
| | | Percent Voids in mineral | One Test | | 1 | 1 |
| | | Percent Voids filled with Bitumen | One Test | | 1 | 1 |
| | | Density | One Test | | 1 | 1 |
| | | Gradation | One Test | | 1 | 1 |
| 13 | BITUMEN | Ductility | One Test | | 1 | 1 |
| | | Softening Point | One Test | | 1 | 1 |
| | | Penetration | One Test | | 1 | 1 |
| | | Flash Point | One Test | | 1 | 1 |
| | | Fire Point | One Test | | 1 | 1 |
| 14 | TACK COAT | Rate of spread | One Test | | 1 | 1 |



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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

**Lab ID** : **CP-2021-10-04-03** **Date: 05-06-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No.12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : Birla Super 53grade

**Reference to BIS codes** : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
IS 4031 (Part 1,2 3,4,5, 6,11):1988
IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5
IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5
IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6

**Date of test** : 03-06-21

**Environmental Conditions during test** : Temperature: 26°C
Humidity: 72%

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 1.63 | – |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 298.4 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.12 | – |
| 4 | Standard Consistency (%) | 29.0% | Not specified |
| 5 | Initial Setting time | 140 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 250 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 1.0mm | Not more than 10 mm |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

**Lab ID** : **CP-2021-10-04-03** **Date: 01-07-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : Birla Super 53grade

**Reference to BIS codes** : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 6, Determination of Compressive Strength, Clause 6

**Date of test** : 03-06-21

**Environmental Conditions during test** : Temperature: 26°C
Humidity: 72%

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 28.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.0N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 58.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Quality Manager


****End of Report****

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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 05-06-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : 40mm down size coarse aggregate

**Reference to BIS codes** : IS: 383:2016 (Specification for Coarse and fine Aggregates )
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
IS 2386 Part 4: Mechanical Properties

**Date of test** : 02-06-21

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken** : **15000** **grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 589 | 589 | 3.9 | 96.1 | 90-100 |
| 3 | 20 mm | 4898 | 5487 | 36.6 | 63.4 | 30-70 |
| 4 | 10 mm | 7143 | 12630 | 84.2 | 15.8 | 10-35 |
| 5 | 4.75 mm | 2118 | 14748 | 98.3 | 1.7 | 0-5 |
| 6 | Pan | 252 | 15000 | 100.0 | 0 | --- |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 05-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 9.2 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 10.4 | |
| 3 | Specific Gravity | 2.67 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.42 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.47 | – |
| 6 | Water Absorption(%) | 0.38 | – |

* The results obtained are satisfactory as per standard requirements.

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FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
**Quality Manager**



****End of Report****

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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 02-06-21

**Sample Type/ Size** : 20mm down size coarse aggregate

**Reference to BIS codes** : IS: 383:2016 (Specification for Coarse and fine Aggregates )
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
IS 2386 Part 4: Mechanical Properties

**Date of test** : 02-06-21

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken** : **5000** **grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 198 | 198 | 4.0 | 96.0 | 90-100 |
| 3 | 10 mm | 3150 | 3348 | 67.0 | 33.0 | 25-55 |
| 4 | 4.75 mm | 1457 | 4805 | 96.1 | 3.9 | 0-10 |
| 5 | Pan | 195 | 5000 | 100 | 0 | |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 11.8 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.2 | |
| 3 | Specific Gravity | 2.64 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.44 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.5 | – |
| 6 | Water Absorption(%) | 0.27 | – |
| 7 | Aggregate crushing Value(%) | 22.8 | Max 30% for Aggregates to be used in concrete for wearing Surface. In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 23.6 | 30% for Aggregates to be used in concrete for wearing Surface,<br>45% for Aggregates to be used in concrete other than for wearing Surface. |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signature
Quality Manager


*End of Report*

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 02-06-21

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

* The results obtained are satisfactory as per standard requirements.

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager


****End of Report****

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Format No: CP/TF/01

## TEST RESULTS OF STEEL

**Lab ID** : **CP-2021-10-04-03** **Date: 19-06-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 18-06-21

**Sample Type** : Sunvik

**Reference to BIS codes** : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

**Date of test:** : 18-06-21

| Sl.No | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress | Tensile strength | Elongation | Bend test | Rebend test |
|---|---|---|---|---|---|---|---|---|---|
| | | | (mm) | (kg/m) | (N/mm2) | (N/mm2) | (%) | | |
| 1 | Sunvik | Fe500 | 8 | 0.391 | 512 | 652 | 20.0% | Satisfactory | Satisfactory |
| 2 | Sunvik | Fe500 | 10 | 0.616 | 528 | 672 | 20.0% | Satisfactory | Satisfactory |

* The results obtained are satisfactory as per standard requirements.

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**


*End of Report*

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# TEST REPORT OF PRECAST COVER SLAB

**Lab ID** : **CP-2021-10-04-03** **Date: 31-07-21**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 27-07-21

**Sample Type /Size** : Precast Cover Slab (100mm)

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete

**Date of test** : 27/07/2021

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 75.51 | 100.48 | 1.116 | 4477 | 100.9 | 22.5 | 21.0 | 26.2 |
| 2 | Cover Slab-2 | 75.49 | 100.52 | 1.122 | 4475 | 102.3 | 22.9 | 21.3 | 26.6 |
| 3 | Cover Slab-3 | 75.50 | 100.51 | 1.118 | 4476 | 101.5 | 22.7 | 21.1 | 26.4 |

* The results obtained are satisfactory as per standard requirements.

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Format No. CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 02/08/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 28-07-21

**Customer ID** : Drain Bottom Slab Concrete ,(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 02/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 151.22 X 150.71 X 149.20 | 22791 | 8.989 | 419.8 | 18.4 | 18.4 |
| 2 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 150.42 X 151.20 X 150.94 | 22743 | 8.313 | 416.9 | 18.3 | |
| 3 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 151.36 X 149.35 X 150.95 | 22606 | 8.127 | 418.7 | 18.5 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 23/08/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 28-07-21

**Customer ID** : Drain Bottom Slab Concrete ,(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 23/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 150.11 X 151.45 X 150.57 | 22733 | 8.511 | 524.9 | 23.1 | 23.1 |
| 2 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 149.34 X 151.17 X 150.83 | 22576 | 8.167 | 516.0 | 22.9 | |
| 3 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 149.99 X 150.52 X 149.98 | 22576 | 8.454 | 524.8 | 23.2 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

Date: 02/08/2021

Lab ID : CP-2021-10-04-03

Project Name : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

Agency : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

Customer's Reference : BBMP/EE/BTP/WO/02/2021-22

Date of Receipt : 28-07-21

Customer ID : Drain Bottom Slab Concrete ,(Thanisandra - Suresh Gowda House Road)

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 02/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 150.38 X 149.98 X 150.16 | 22554 | 8.989 | 425.1 | 18.8 | 18.7 |
| 2 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 151.47 X 149.94 X 151.97 | 22711 | 8.313 | 422.7 | 18.6 | |
| 3 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 02/08/2021 | 149.05 X 151.49 X 151.43 | 22579 | 8.127 | 423.1 | 18.7 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 23/08/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 28-07-21

**Customer ID** : Drain Bottom Slab Concrete .(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 23/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 151.49 X 150.61 X 150.21 | 22817 | **8.511** | 525.2 | 23.0 | 23.1 |
| 2 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 149.56 X 149.51 X 150.81 | 22360 | **8.167** | 499.1 | 22.3 | |
| 3 | Drain Bottom Slab Concrete | M20 | 26/07/2021 | 23/08/2021 | 149.62 X 150.01 X 151.36 | 22444 | **8.454** | 535.6 | 23.9 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 16/08/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 11-08-21

**Customer ID** : Drain Side Wall Concrete ,(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 16/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 151.40 X 151.02 X 149.78 | 22864 | 8.989 | 419.9 | 18.4 | 18.3 |
| 2 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 151.73 X 151.10 X 150.00 | 22927 | 8.313 | 418.7 | 18.3 | |
| 3 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 150.03 X 149.48 X 150.75 | 22427 | 8.127 | 409.4 | 18.3 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 06/09/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 11-08-21

**Customer ID** : Drain Side Wall Concrete ,(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 06/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 151.48 X 151.91 X 151.29 | 23011 | 8.511 | 552.1 | 24.0 | 23.3 |
| 2 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 151.97 X 150.70 X 149.16 | 22901 | 8.167 | 512.0 | 22.4 | |
| 3 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 151.71 X 149.85 X 149.74 | 22734 | 8.454 | 534.6 | 23.5 | |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Date: 16/08/2021**

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-04-03** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/02/2021-22 |
| **Date of Receipt** | : | 11-08-21 |
| **Customer ID** | : | Drain Side Wall Concrete ,(Thanisandra - Suresh Gowda House Road) |
| **Sample Type /Size** | : | 150X150X150 mm |
| **Sample grade/Age** | : | M20 / 7 Days Compressive Strength |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5 |
| **Date of test** | : | 16/08/2021 |

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 149.88 X 150.88 X 149.71 | 22615 | 8.989 | 428.1 | 18.9 | 18.8 |
| 2 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 151.76 X 150.07 X 151.94 | 22775 | 8.313 | 419.5 | 18.4 | |
| 3 | Drain Side Wall Concrete | M20 | 09/08/2021 | 16/08/2021 | 151.72 X 149.75 X 151.35 | 22720 | 8.127 | 430.1 | 18.9 | |

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
**Quality Manager**

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 06/09/2021**

**Project Name** : Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 11-08-21

**Customer ID** : Drain Side Wall Concrete ,(Thanisandra - Suresh Gowda House Road)

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 06/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 149.12 X 149.88 X 150.04 | 22350 | **8.511** | 514.3 | 23.0 | 22.7 |
| 2 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 150.29 X 150.36 X 150.53 | 22598 | **8.167** | 500.7 | 22.2 | |
| 3 | Drain Side Wall Concrete | M20 | 09/08/2021 | 06/09/2021 | 149.78 X 149.50 X 149.27 | 22393 | **8.454** | 516.2 | 23.1 | |

* The results obtained are satisfactory as per standard requirements.

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Certificate No.: TC-5548

## TEST RESULTS OF GRADATION FOR WMM

**Lab ID** : **CP-RW-2021-10-04-03** **Date: 11-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 09-09-21

**Type of Mix** : WMM ( Wet Mix Macadam)

**Date of test** : 09-09-21

**Oven Dry Weight** : 11000 Grams

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

* The results obtained are satisfactory as per standard requirements.

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ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-

FOR CIVIL Pro.
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# TEST REPORT OF AGGEGRATE IMPACT VALUE

## IS: 2386 Part IV

**Lab ID** : **CP-RW-2021-10-04-03** **Date: 11-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company, Prop.Sri C R Girish, No:12, Patel Pillegowda Layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 09-09-21

**Type of Mix** : Coarse Aggregate for WMM ( Wet Mix Macadam)

**Date of test** : 09-09-21

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

* The results obtained are satisfactory as per standard requirements.

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# DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

**Lab ID** : CP-RW-2021-10-04-03 **Date: 11-09-21**

**Project Name** : Package-3. Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109.110.111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Thanisandra and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and Company. Prop.Sri C R Girish. No:12. Patel Pillegowda Layout. Ramachandrapura. Bangalore-560013

**Customer Reference** : BBMP/EE/BTP/WO/02/2021-22

**Date of Receipt** : 09-09-21

**Type of Mix** : Coarse Aggregate for WMM ( Wet Mix Macadam)

**Date of test** : 09-09-21

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

* The results obtained are satisfactory as per standard requirements.

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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-04-03** **Date: 05-06-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 02-06-21 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,<br>IS 4031 (Part 1,2 3,4,5, 6,11):1988<br>IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4<br>IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5<br>IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6<br>IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5<br>IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5<br>IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6 |
| **Date of test** | : | 03-06-21 |
| **Environmental Conditions during test** | : | Temperature: 26°C<br>Humidity: 72% |

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | Fineness by dry sieving (%) | 2.1 | – |
| 2 | Finess by Air permeablity method ($m^2$/kg,Min) | 284.5 | 225$m^2$/kg, Min |
| 3 | Density (gm/cc) | 3.13 | – |
| 4 | Standard Consistency (%) | 28% | Not specified |
| 5 | Initial Setting time | 155 minutes | Not less than 30 minutes |
| 6 | Final Setting time | 260 minutes | Not more than 600 minutes |
| 7 | Soundness (Le Chatelier's Method) | 2mm | Not more than 10 mm |

* The results obtained are satisfactory as per standard requirements.

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Quality Manager



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## TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-04-03** **Date: 01-07-21** |
| **Project Name** | : | Package-3, Includes 5 Works Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113. **Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 02-06-21 |
| **Sample Type** | : | Birla Super 53grade |
| **Reference to BIS codes** | : | IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6 |
| **Date of test** | : | 03-06-21 |
| **Environmental Conditions during test** | : | Temperature: 26°C Humidity: 72% |

**Compressive Strength**

| Sl.No. | Physical properties | Results | Requirement as per IS 12269: 2013 |
|---|---|---|---|
| 1 | 3 Days | 28.5N/mm$^2$ | Not less than 27 N/mm$^2$ |
| 2 | 7 Days | 39.0N/mm$^2$ | Not less than 37 N/mm$^2$ |
| 3 | 28 Days | 58.5N/mm$^2$ | Not less than 53 N/mm$^2$ |

* The results obtained are satisfactory as per standard requirements.

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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 05-06-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : 40mm down size coarse aggregate

**Reference to BIS codes** : IS: 383:2016 (Specification for Coarse and fine Aggregates )
IS: 2386 :1963(Part - 1,3,4) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
IS 2386 Part 4: Mechanical Properties

**Date of test** : 02-06-21

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:**

**Total weight taken** : **15000** **grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 80 mm | 0 | 0 | 0.0 | 100 | 100 |
| 2 | 40 mm | 214 | 214 | 1.4 | 98.6 | 90-100 |
| 3 | 20 mm | 7254 | 7468 | 49.8 | 50.2 | 30-70 |
| 4 | 10 mm | 4442 | 11910 | 79.4 | 20.6 | 10-35 |
| 5 | 4.75 mm | 2685 | 14595 | 97.3 | 2.7 | 0-5 |
| 6 | Pan | 405 | 15000 | 100.0 | 0 | --- |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 05-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 10.6 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 12.3 | |
| 3 | Specific Gravity | 2.64 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.49 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.52 | – |
| 6 | Water Absorption(%) | 0.17 | – |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.

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## TEST REPORT ON COARSE AGGREGATES

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-04-03** **Date: 04-06-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013 |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 02-06-21 |
| **Sample Type/ Size** | : | 20mm down size coarse aggregate |
| **Reference to BIS codes** | : | IS: 383:2016 (Specification for Coarse and fine Aggregates )<br>IS: 2386 :1963(Part - 1,3,4) RA2011<br>IS 2386 Part 1: Particle Size and Shape<br>IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption<br>IS 2386 Part 4: Mechanical Properties |
| **Date of test** | : | 02-06-21 |

**SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:**

**Total weight taken : 5000 grams**

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|---|---|---|---|---|---|---|
| 1 | 40 mm | 0 | 0 | 0 | 100 | 100 |
| 2 | 20 mm | 237 | 237 | 4.7 | 95.3 | 90-100 |
| 3 | 10 mm | 2544 | 2781 | 55.6 | 44.4 | 25-55 |
| 4 | 4.75 mm | 2107 | 4888 | 97.8 | 2.2 | 0-10 |
| 5 | Pan | 112 | 5000 | 100 | 0 | – |



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## TEST REPORT ON COARSE AGGREGATES

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

### PHYSICAL PROPERTIES

| Sl.no | Tests | Result | Requirements as per IS:383-2016 |
|---|---|---|---|
| 1 | Flakiness Index(%) | 10.7 | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2 | Elongation Index(%) | 11.4 | |
| 3 | Specific Gravity | 2.65 | – |
| 4 | Bulk Density(Loose) (Kg/l) | 1.53 | – |
| 5 | Bulk Density(Compacted) (Kg/l) | 1.57 | – |
| 6 | Water Absorption(%) | 0.19 | – |
| 7 | Aggregate crushing Value(%) | 25.6 | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8 | Aggregate Impact Value(%) | 22.5 | 30% for Aggregates to be used in concrete for wearing Surface,<br>45% for Aggregates to be used in concrete other than for wearing Surface. |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 02-06-21

**Sample Type** : Fine Aggregate

**Reference to BIS codes** : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

**Date of test** : 02-06-21

**Total weight taken** : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Grading Zone I | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1 | 10 mm | 0 | 0 | 0.0 | 100.0 | 100 | 100 | 100 | 100 |
| 2 | 4.75 mm | 27 | 27 | 2.7 | 97.3 | 90-100 | 90-100 | 90-100 | 95-100 |
| 3 | 2.36 mm | 55 | 82 | 8.2 | 91.8 | 60-95 | 75-100 | 85-100 | 95-100 |
| 4 | 1.18 mm | 239 | 321 | 32.1 | 67.9 | 30-70 | 55-90 | 75-100 | 90-100 |
| 5 | 600 micron | 205 | 526 | 52.6 | 47.4 | 15-34 | 35-59 | 60-79 | 80-100 |
| 6 | 300 micron | 203 | 729 | 72.9 | 27.1 | 5-20 | 8-30 | 12-40 | 15-50 |
| 7 | 150 micron | 191 | 920 | 92.0 | 8.0 | 0-10 | 0-10 | 0-10 | 0-15 |
| 8 | Pan | 80 | 1000 | 100.0 | 0.0 | --- | --- | --- | --- |

**Result :The tested Sample Conforms to Grading Zone II**



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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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ಬಿ.ಬಿ.ಎಂ.ಪಿ ಬೆಂಗಳೂರು-26

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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

* The results obtained are satisfactory as per standard requirements.

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ದ್ಯಾಪಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-28

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R KARTHIK RECHAN
Authorized Signatory
**Quality Manager**


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# TEST REPORT OF FINE AGGREGATE

**Lab ID** : **CP-2021-10-04-03** **Date: 04-06-21**

**PHYSICAL PROPERTIES**

| Sl.no | Tests | Result | Requirements as per IS 383:2016 |
|---|---|---|---|
| 1 | Water Absorption(%) | 1.5 | – |
| 2 | Specific Gravity | 2.59 | – |
| 3 | Material finer than 75 micron(%) | 6.9 | Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10% |

* The results obtained are satisfactory as per standard requirements.

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ದ್ಯಾಪಿರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-೨೫

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# TEST REPORT OF PRECAST COVER SLAB

Date: 07-06-21

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2021-10-04-03** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013 |
| **Customer's Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 02-06-21 |
| **Sample Type /Size** | : | Precast Cover Slab (100mm) |
| **Reference to BIS codes** | : | IS: 516 - 1959 Methods of Tests for Strength of Concrete |
| **Date of test** | : | 02/06/2021 |

| Sl. No. | Identification Mark | Diameter of the core | Height of the core | Weight of the core | Area | Failure Load | Core Compressive strength | Corrected Cylinder Compressive strength | Equivalent Cube Compressive strength |
|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (kg) | (Sq.mm) | (KN) | ($N/mm^2$) | ($N/mm^2$) | ($N/mm^2$) |
| 1 | Cover Slab-1 | 75.51 | 100.48 | 1.116 | 4477 | 100.9 | 22.5 | 21.0 | 26.2 |
| 2 | Cover Slab-2 | 75.49 | 100.52 | 1.122 | 4475 | 100.3 | 22.4 | 20.8 | 26.1 |
| 3 | Cover Slab-3 | 75.50 | 100.51 | 1.118 | 4476 | 100.5 | 22.5 | 20.9 | 26.1 |

* The results obtained are satisfactory as per standard requirements.

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## TEST RESULTS OF STEEL

**Lab ID** : **CP-2021-10-04-03** **Date: 19-06-21**

**Project Name** :

Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 18-06-21

**Sample Type** : Sunvik

**Reference to BIS codes** : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

**Date of test:** : 18-06-21

| Sl.No | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress | Tensile strength | Elongation | Bend test | Rebend test |
|---|---|---|---|---|---|---|---|---|---|
| | | | (mm) | (kg/m) | (N/mm2) | (N/mm2) | (%) | | |
| 1 | Sunvik | Fe500 | 8 | 0.391 | 512 | 652 | 20.0% | Satisfactory | Satisfactory |
| 2 | Sunvik | Fe500 | 10 | 0.616 | 528 | 672 | 20.0% | Satisfactory | Satisfactory |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : CP-2021-10-04-03 **Date: 29/07/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 24-07-21

**Customer ID** : Drain Bottom Raft Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 29/07/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 151.92 X 151.72 X 149.32 | 23050 | **8.373** | 431.7 | 18.7 | 18.6 |
| 2 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 150.40 X 151.05 X 149.03 | 22718 | **8.168** | 429.0 | 18.9 | |
| 3 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 151.85 X 151.50 X 151.72 | 23006 | **8.425** | 416.0 | 18.1 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 19/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 24-07-21

**Customer ID** : Drain Bottom Raft Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 19/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 151.42 X 151.31 X 149.79 | 22911 | **8.745** | 529.0 | 23.1 | 23.1 |
| 2 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 149.78 X 150.61 X 150.60 | 22559 | **8.071** | 502.4 | 22.3 | |
| 3 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 151.04 X 151.77 X 150.79 | 22923 | **8.258** | 549.1 | 24.0 | |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 29/07/2021**

**Project Name** : Package-3. Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 24-07-21

**Customer ID** : Drain Bottom Raft Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 29/07/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 149.44 X 149.28 X 151.75 | 22308 | 8.373 | 418.7 | 18.8 | 18.9 |
| 2 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 151.12 X 151.61 X 149.88 | 22912 | 8.168 | 433.9 | 18.9 | |
| 3 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 29/07/2021 | 149.56 X 151.33 X 151.66 | 22634 | 8.425 | 428.5 | 18.9 | |

* The results obtained are satisfactory as per standard requirements

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 19/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 24-07-21

**Customer ID** : Drain Bottom Raft Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 19/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 150.95 X 150.86 X 150.44 | 22773 | **8.745** | 545.1 | 23.9 | 23.2 |
| 2 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 150.19 X 150.34 X 149.18 | 22579 | **8.071** | 502.5 | 22.3 | |
| 3 | Drain Bottom Raft Concrete | M20 | 22/07/2021 | 19/08/2021 | 149.12 X 149.20 X 150.87 | 22250 | **8.258** | 517.8 | 23.3 | |

* The results obtained are satisfactory as per standard requirements.

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ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-೨೬

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# TEST REPORT OF CEMENT CONCRETE CUBES

Date: 11/08/2021

**Lab ID** : CP-2021-10-04-03

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 06-08-21

**Customer ID** : Drain Side wall Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 11/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength (N/mm²) | Average Compressive Strength (N/mm²) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 149.67 X 149.82 X 150.69 | 22425 | 8.373 | 415.7 | 18.5 | 18.4 |
| 2 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 150.12 X 149.61 X 150.55 | 22459 | 8.168 | 414.6 | 18.5 | |
| 3 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 150.66 X 149.54 X 151.77 | 22529 | 8.425 | 410.5 | 18.2 | |

* The results obtained are satisfactory as per standard requirements

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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 01/09/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 06-08-21

**Customer ID** : Drain Side wall Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 01/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 151.11 X 149.35 X 150.98 | 22568 | 8.745 | 524.3 | 23.2 | 23.3 |
| 2 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 151.10 X 151.28 X 149.88 | 22859 | 8.071 | 524.5 | 22.9 | |
| 3 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 151.83 X 151.91 X 149.32 | 23064 | 8.258 | 547.6 | 23.7 | |

* The results obtained are satisfactory as per standard requirements.

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ವ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

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Format No: CP/TF/01

# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 11/08/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 06-08-21

**Customer ID** : Drain Side wall Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 7 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 11/08/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 149.44 X 151.27 X 149.60 | 22605 | **8.373** | 428.5 | 19.0 | 18.7 |
| 2 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 151.87 X 151.25 X 149.10 | 22971 | **8.168** | 434.3 | 18.9 | |
| 3 | Drain Side wall Concrete | M20 | 04/08/2021 | 11/08/2021 | 151.88 X 149.12 X 150.47 | 22649 | **8.425** | 414.4 | 18.3 | |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

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Authorized Signatory
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# TEST REPORT OF CEMENT CONCRETE CUBES

**Lab ID** : **CP-2021-10-04-03** **Date: 01/09/2021**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109.110.111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer's Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 06-08-21

**Customer ID** : Drain Side wall Concrete -Dasarahalli ACP Officer House Road

**Sample Type /Size** : 150X150X150 mm

**Sample grade/Age** : M20 / 28 Days Compressive Strength

**Reference to BIS codes** : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

**Date of test** : 01/09/2021

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen (mm) | Cross sectional area (Sq.mm) | Weight of the sample (kg) | Failure Load (KN) | Compressive strength ($N/mm^2$) | Average Compressive Strength ($N/mm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 151.38 X 150.76 X 149.10 | 22822 | 8.745 | 540.3 | 23.7 | 23.1 |
| 2 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 150.52 X 149.01 X 150.52 | 22429 | 8.071 | 494.9 | 22.1 | |
| 3 | Drain Side wall Concrete | M20 | 04/08/2021 | 01/09/2021 | 149.55 X 149.33 X 149.64 | 22333 | 8.258 | 525.5 | 23.5 | |

* The results obtained are satisfactory as per standard requirements.

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ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

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## TEST RESULTS OF GRADATION FOR WMM

**Lab ID** : **CP-RW-2021-10-04-03** **Date: 02-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-08-21

**Type of Mix** : WMM ( Wet Mix Macadam)

**Date of test** : 31-08-21

**Oven Dry Weight** : 11000 Grams

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE IMPACT VALUE
## IS: 2386 Part IV

**Lab ID** : **CP-RW-2021-10-04-03** **Date: 02-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-08-21

**Type of Mix** : Coarse Aggregate for WMM ( Wet Mix Macadam)

**Date of test** : 31-08-21

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

* The results obtained are satisfactory as per standard requirements.

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## DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

**Lab ID** : **CP-RW-2021-10-04-03** **Date: 02-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Dasarahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s. Ram and company Prop. Sri C R Girish No:12, Pate Pillegowda layout, Ramachandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-08-21

**Type of Mix** : Coarse Aggregate for WMM ( Wet Mix Macadam)

**Date of test** : 31-08-21

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

* The results obtained are satisfactory as per standard requirements.

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿ.....
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# TEST RESULTS OF GRADATION FOR WMM

**Lab ID** : **CP-RW-2021-10-06-03** **Date: 03-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 31-08-21

**Type of Mix** : WMM ( Wet Mix Macadam)

**Date of test** : 31-08-21

**Oven Dry Weight** : 11000 Grams

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 315 | 315 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2259 | 2574 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2179 | 4753 | 43.2 | 56.8 | 40-60 |
| 4.75 | 2251 | 7004 | 63.7 | 36.3 | 25-40 |
| 2.36 | 1621 | 8625 | 78.4 | 21.6 | 15-30 |
| 0.6 | 623 | 9248 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1338 | 10586 | 96.2 | 3.8 | 0-5 |

* The results obtained are satisfactory as per standard requirements.

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# TEST REPORT OF AGGEGRATE IMPACT VALUE
## IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** **Date: 03-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br><br>**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 |
| **Date of Receipt** | : | 31-08-21 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 31-08-21 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 300.2 | 300.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 225.9 | 225.8 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.6 | 24.7 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.6 | |

* The results obtained are satisfactory as per standard requirements.

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# DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | | |
|---|---|---|---|
| **Lab ID** | : | **CP-RW-2021-10-06-03** | **Date: 03-09-21** |
| **Project Name** | : | Package-3, Includes 5 Works<br>Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111. Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.<br>**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division** | |
| **Agency** | : | M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013 | |
| **Customer Reference** | : | BBMP-EE-BTP-WO-02-2021-22 | |
| **Date of Receipt** | : | 31-08-21 | |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) | |
| **Date of test** | : | 31-08-21 | |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 12.8% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 12.5% | |
| Combined Flakiness and Elongation Index for WMM | 25.3% | |

* The results obtained are satisfactory as per standard requirements.

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*End of Report*

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
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# TEST RESULTS OF GRADATION FOR DBM
## (IS 2386:(Part 1) 1963 (RA2011)

**Lab ID** : CP-RW-2021-10-06-03 **Date: 13-09-21**

**Project Name** : Package-3, Includes 5 Works
Improvements to Roads and Drains at Thanisandra Dasarahalli Saraipalya and Bharathnagara and Surrounding Area in Ward No 06 Byatarayanapura Sub Division Package-3 (Old Annuxure-2) Go Sl No 109,110,111.
Comprehensive Development and Improvements to Roads and Drains Rachenahalli and Surrounding Area in Ward No 6 and 7 Byatarayanapura Sub Division Package-2 (Old Annuxure) Go Sl No 112 and 113.

**Improvements to roads and drains at Rachenahalli and Surrounding area in Ward No 06 Byatarayanapura sub division**

**Agency** : M/s.Ram and Company,Prop.Sri C R Girish,No:12 Patel Pillegoda layout, Ramchandrapura, Bangalore-560013

**Customer Reference** : BBMP-EE-BTP-WO-02-2021-22

**Date of Receipt** : 11-09-21

**Type of Mix** : DBM-Plant (Dense Bituminous Macadam)

**Date of test** : 11-09-21

**Weight of Sample** : 5000 Grams

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Specification Limits as per MORTH specification Table 500-10 (grading -2) |
|---|---|---|---|---|---|
| 37.5 | 0 | 0 | 0 | 100 | 100 |
| 26.5 | 250 | 250 | 5.00 | 95.00 | 90-100 |
| 19 | 350 | 600 | 12.00 | 88.00 | 71-95 |
| 13.2 | 450 | 1050 | 21.00 | 79.00 | 56-80 |
| 4.75 | 1750 | 2800 | 56.00 | 44.00 | 38-54 |
| 2.36 | 400 | 3200 | 64.00 | 36.00 | 28-42 |
| 0.3 | 1350 | 4550 | 91.00 | 9.00 | 7-21 |
| 0.075 | 250 | 4800 | 96.00 | 4.00 | 2-8 |
| PAN | 200 | 5000 | 0.00 | 0 | 0 |

* The results obtained are satisfactory as per standard requirements.

FOR CIVIL Pro.
R KARTHIK RECHAN
Authorized Signatory
Quality Manager


End of Report*

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